



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-0940; Project Identifier AD-2022-01521-E]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Division Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive (AD) 2018-21-11, which applies to all Pratt & Whitney Division (PW) Model PW4074D, PW4077D, PW4084D, PW4090, and PW4090-3 engines with a low-pressure compressor (LPC) fan hub, part number (P/N) 51B821 or P/N 52B521, installed. AD 2018-21-11 requires performing repetitive eddy current inspections (ECIs) and fluorescent penetrant inspections (FPIs) for cracks in certain LPC fan hubs and removing LPC fan hubs from service that fail any inspection. Since the FAA issued AD 2018-21-11, the FAA determined that affected LPC fan hub assemblies can meet the published certificated life limit without the need for the required repetitive FPI inspections in AD 2018-21-11, and the repetitive ECI inspections require shortened intervals. Based on a report of another incident, the FAA determined that the unsafe condition is likely to exist or develop on additional LPC fan hub assemblies and PW model engines. This proposed AD would expand the applicability to include Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines with any part number LPC fan hub assembly installed and would require performing repetitive ECIs of the LPC fan hub assembly and, depending on the results of the inspections, removal of the LPC fan hub assembly from service. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to [regulations.gov](https://www.regulations.gov). Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) by searching for and locating Docket No. FAA-2023-0940; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, any comments received, and other information. The street address for Docket Operations is listed above.

Material Incorporated by Reference:

- For Pratt & Whitney Division service information identified in this NPRM, contact Pratt & Whitney Division, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@prattwhitney.com; website: connect.prattwhitney.com.
- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

FOR FURTHER INFORMATION CONTACT: Carol Nguyen, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7655; email: carol.nguyen@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under ADDRESSES. Include “Docket No. FAA-2023-0940; Project Identifier AD-2022-01521-E” at the beginning of

your comments. The most helpful comments reference a specific portion of the proposal, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend the proposal because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to regulations.gov, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this NPRM.

Confidential Business Information

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing CBI should be sent to Carol Nguyen, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

Background

The FAA issued AD 2018-21-11, Amendment 39-19469 (83 FR 54663, October 31, 2018), ("AD 2018-21-11"), for all Pratt & Whitney Division (PW) PW4074D, PW4077D, PW4084D, PW4090, and PW4090-3 turbofan engines with low-pressure compressor (LPC) fan hub assembly, part number (P/N) 51B821 or P/N 52B521, installed. AD 2018-21-11 was prompted by low-cycle fatigue analysis techniques, updated by the engine manufacturer, which indicated certain LPC fan hub assemblies could crack before their published life limit. AD 2018-21-11 requires performing initial

and repetitive FPI and ECIs of the LPC fan hub assembly and removing the LPC fan hub assembly from service if it fails any inspection. The agency issued AD 2018-21-11 to prevent failure of the LPC fan hub assembly.

Actions Since AD 2018-21-11 Was Issued

Since the FAA issued AD 2018-21-11, the FAA determined that affected LPC fan hub assemblies can meet the published certificated life limit without the need for the required repetitive FPI inspections in AD 2018-21-11, and the repetitive ECI inspections require shortened intervals. The FAA also received a report of an uncontained failure of the fan hub assembly on an Engine Alliance GP7270 engine on an Air France flight. Investigation of this uncontained failure revealed that, due to the similarity of design and material processing for the LPC fan hub assembly, the ECI inspections should be done on all LPC fan hub assembly part numbers installed on PW Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines.

This condition, if not addressed, could result in uncontained debris release, damage to the engine, and damage to the aircraft.

FAA's Determination

The FAA is issuing this NPRM after determining that the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Related Service Information under 1 CFR Part 51

The FAA reviewed Pratt & Whitney Division Alert Service Bulletin PW4G-112-A72-362, Revision 1 dated January 20, 2023. This service information specifies procedures for ECIs of the LPC fan hub assembly for cracks. This service information also specifies reporting inspection results to PW.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in ADDRESSES.

Proposed AD Requirements in this NPRM

This proposed AD would retain none of the requirements of AD 2018-21-11. This proposed AD would expand the applicability to include Model PW4074, PW4074D,

PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines with any P/N LPC fan hub assembly installed. This proposed AD would also require performing repetitive ECIs of the LPC fan hub assembly and, depending on the results of the inspections, removing the LPC fan hub assembly from service.

Differences Between this Proposed AD and the Service Information

Where the service information specifies reporting certain information to PW, this proposed AD does not include that requirement.

Costs of Compliance

The FAA estimates that this AD, if adopted as proposed, would affect 65 engines installed on airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs

Action	Labor Cost	Parts Cost	Cost per product	Cost on U.S. operators
Perform ECI of LPC fan hub assembly	14 work-hours x \$85 per hour = \$1,190	Not Applicable	\$1,190	\$77,350

The FAA estimates the following costs to do any necessary replacements that would be required based on the results of the proposed inspection. The agency has no way of determining the number of engines that might need this replacement:

On-condition costs

Action	Labor Cost	Parts Cost	Cost per product
Replace LPC fan hub assembly	65 work-hours x \$85 per hour = \$5,525	\$1,194,000	\$1,199,525

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that the proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Would not affect intrastate aviation in Alaska, and
- (3) Would not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by:

- a. Removing Airworthiness Directive 2018-21-11, Amendment 39-19469 (83 FR 54663, October 31, 2018); and

b. Adding the following new airworthiness directive:

Pratt & Whitney Division: Docket No. FAA-2023-0940; Project Identifier AD-2022-01521-E.

(a) Comments Due Date

The FAA must receive comments on this airworthiness directive (AD) action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2018-21-11, Amendment 39-19469 (83 FR 54663, October 31, 2018); (AD 2018-21-11).

(c) Applicability

This AD applies to all Pratt & Whitney Division (PW) Model PW4074, PW4074D, PW4077, PW4077D, PW4084D, PW4090, and PW4090-3 engines.

(d) Subject

Joint Aircraft System Component (JASC) Code 7230, Turbine Engine Compressor Section.

(e) Unsafe Condition

This AD was prompted by an updated analysis by the engine manufacturer, which indicated certain low-pressure compressor (LPC) fan hubs could crack before their published life limit. We are issuing this AD to prevent failure of the LPC fan hub. The unsafe condition, if not addressed, could result in uncontained hub release, damage to the engine, and damage to the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Required Actions

(1) Before accumulating 550 flight cycles (FC) after the effective date of this AD, and thereafter at intervals not to exceed 550 FC since the last eddy current inspection (ECI), perform an ECI of the LPC fan hub assembly, in accordance with the Accomplishment Instructions, For Engines Installed on Aircraft, paragraph 2., or For

Engines Not Installed on Aircraft, paragraph 3; of PW Alert Service Bulletin PW4G-112-A72-362, Revision 1 dated January 20, 2023 (ASB PW4G-112-A72-362, Revision 1).

(2) If a rejectable or reportable indication is found during the inspections required by paragraph (g)(1) of this AD, before further flight, replace the LPC fan hub assembly with a part eligible for installation.

(h) Installation Prohibition

After the effective date of this AD, do not install an LPC fan hub assembly on any engine, unless it is a part eligible for installation as defined in paragraph (j) of this AD.

(i) No Reporting Requirement

This AD does not require reporting certain information to the manufacturer as specified in ASB PW4G-112-A72-362, Revision 1.

(j) Definitions

For the purposes of this AD, a “part eligible for installation” is an affected LPC fan hub assembly that has been inspected as required by paragraph (g)(1) of this AD and does not have a rejectable or reportable indication or a LPC fan hub assembly with zero cycles since new.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Continued Operational Safety Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (l) of this AD.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(l) Related Information

For more information about this AD, contact Carol Nguyen, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue; phone: (781) 238-7655; email: carol.nguyen@faa.gov.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Pratt & Whitney Division Alert Service Bulletin PW4G-112-A72-362, Revision 1, dated January 20, 2023.

(ii) [Reserved]

(3) For service information identified in this AD, contact Pratt & Whitney Division, 400 Main Street, East Hartford, CT 06118; phone: (860) 565-0140; email: help24@prattwhitney.com; website: connect.prattwhitney.com.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email: fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on May 4, 2023.

Michael Linegang, Acting Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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